

DEPARTMENT OF TRANSPORTATION

DIVISION OF ENGINEERING SERVICES

Office of Structural Materials

Quality Assurance and Source Inspection



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Contract #: 04-0120F4Cty: SF/ALA Rte: 80 PM: 13.2/13.9File #: 1.28**WELDING INSPECTION REPORT****Resident Engineer:**Siegenthaler, Peter**Address:** 333 Burma Road**City:** Oakland, CA 94607**Report No:** WIR-018639**Date Inspected:** 14-Dec-2010**Project Name:** SAS Superstructure**OSM Arrival Time:** 630**Prime Contractor:** American Bridge/Fluor Enterprises, a JV**OSM Departure Time:** 1500**Contractor:** American Bridge/Fluor Enterprises, a JV**Location:** Job Site**CWI Name:** See Below**CWI Present:** Yes No**Inspected CWI report:** Yes No N/A**Rod Oven in Use:** Yes No N/A**Electrode to specification:** Yes No N/A**Weld Procedures Followed:** Yes No N/A**Qualified Welders:** Yes No N/A**Verified Joint Fit-up:** Yes No N/A**Approved Drawings:** Yes No N/A**Approved WPS:** Yes No N/A**Delayed / Cancelled:** Yes No N/A**Bridge No:** 34-0006**Component:** Orthotropic Box Girders**Summary of Items Observed:**

At the start of the shift the Quality Assurance Inspector (QAI) traveled to the project site and observed the following work performed by American Bridge/Fluor Enterprises (AB/F) personnel at the locations noted below:

- A). Deck Access Hole
- B). Pipe Supports
- C). Verification of Transition

A). Deck Access Hole

The QAI observed the welder, Jorge Lopez ID-6149, perform the CJP welding of the Deck Access Hole- Insert Plate (DAH-IP) identified as Weld Number (WN): 8W-PP61.5-W5-SW located on the "A" deck of the Orthotropic Box Girder (OBG) W8. The welding was performed utilizing the SMAW process as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1010, Rev. 1. The WPS was also utilized by the QC inspector, Steve McConnell, as a reference to monitor the welding and to verify the welding parameters which was recorded as 159 amps by the QC inspector. The 4.8 mm low hydrogen electrode, E7018 H4R, was utilized with the welding performed in the flat (1G) position with work placed in an approximately horizontal plane and the weld metal deposited from the upper side.

The groove joint appeared to comply with the AWS joint designation identified as B-U4a and the minimum preheat temperature of 65 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector. The work performed appeared to comply with the contract documents.

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The QAI observed the welder, Ken Chappell ID-3833, perform the CJP welding of the Deck Access Hole- Insert Plate (DAH-IP) identified as Weld Number (WN): 3W-PP19.5-W2-NW located on the "A" deck of the Orthotropic Box Girder (OBG) W4. The welding was performed utilizing the SMAW process as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1010, Rev. 1. The WPS was also utilized by the QC inspector, William Sherwood, as a reference to monitor the welding and verify the welding parameters which was recorded as 150 amps by the QC inspector. The 4.0 mm low hydrogen electrode, E7018 H4R, was utilized with the welding performed which was performed in the flat (1G) position with work placed in an approximately horizontal plane and the weld metal deposited from the upper side. The groove joint appeared to comply with the AWS joint designation identified as B-U4a and the minimum preheat temperature of 65 degrees Celsius and the maximum interpass temperature of 230 degrees Celsius were verified by the QC inspector. The work performed appeared to comply with the contract documents.

The QAI observed the welder, Wen Han Yu ID-6317, perform the CJP groove welding of the Deck Access Hole (DAH) identified as WN: 1W-PP10.5-W5-SE which was located at the Panel Point (PP) 24.5 along the grid line W5 of the OBG W1 "A" deck. The QAI observed the QC inspector monitor the welding and verify the welding parameters which were noted as 146 amps.

The QAI also observed the welder, Mick Chan ID-9265, perform the CJP groove welding of the Deck Access Hole (DAH) identified as WN: 1W-PP13.5-W5-SW which was located at the Panel Point (PP) 13.5 along the grid line W5 of the OBG W1 "A" deck. The QAI observed the QC inspector monitor the welding and verify the welding parameters which were noted as 153 amps.

Later in the shift, the QAI also observed the welder, Jin Pei Wang ID-7299, perform the CJP groove welding of the Deck Access Hole (DAH) identified as WN: 1W-PP10.5-W2-N which was located at the Panel Point (PP) 10.5 along the grid line W2 of the OBG W1 "A" deck. The QAI observed the QC inspector monitor the welding and verify the welding parameters which were noted as 141 amps.

The welders, Mr. Yu, Mr. Chan and Mr. Wang utilized the SMAW process as per the Welding Procedure Specification (WPS) identified as ABF-WPS-D15-1010, Rev.1 which was also utilized by the QC inspector William Sherwood as a reference to monitor the welding and verify the welding parameters. The welding was performed utilizing a 4.0 mm E7018 H4R electrodes with the welding performed in the overhead (4G) position with the work placed in an approximately horizontal plane and the weld metal deposited from the underside. The minimum preheat temperature of 65 degrees Celsius and the interpass temperature of 230 degrees Celsius appeared to comply with contract documents. The welders utilized a slag hammer and a wire wheel attached to a 4" high cycle grinder to remove slag after deposit of each fill pass.

The QAI also observed the welder, Mike Jiminez ID-4671, perform the Complete Joint Penetration (CJP) groove welding of the Deck Access Hole (DAH) identified as WN: 1W-PP8.5-W4-Weld No. 4 located along the grid line W4 of the OBG W1. The welding was performed utilizing the Shielded Metal Arc Welding (SMAW) process as per the Welding Procedure Specification (WPS) ABF-WPS-D15-1050A, Rev. 1. The WPS was also utilized by the QC inspector, William Sherwood, as a reference to monitor the welding and to verify the welding parameters. The QC verification of the welding parameters was observed by the QAI and recorded as 140 amps. The welding was performed in the flat (1G) position with work placed in an approximately horizontal plane and the weld metal deposited from the upper side. The welding of the DAH was not completed during this shift.

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B). Pipe Supports

The QAI observed the field fit-up and tack welding of the pipe supports along the W5 grid line located on top side of the OBG W7 "A" deck. The QC inspection was performed by Mike Johnson utilizing the WPS to monitor the welding and to verify the welding parameters. The tack welding was performed by the welder, Rick Kiikvee ID-5319 utilizing a 2.4 mm electrode, in vertical (2F) position, as per the Welding Procedure Specification (WPS) identified as Fillet Murex. The QAI also observed Mr. Johnson verifying the welding parameters and were recorded as 95 amps.

C). Verification of 2-1/2 to Transition

At the request of QC Supervisor, Leonard Cross, the QAI observed and verified the 2 1/2 to 1 transition at the various misalignments as indicated on the Offset Map and Planar Misalignment Map provided by ABF/Flour Quality Control department. This task was completed on the West bound OBG's W1 through W8 and appeared to comply with the 2 1/2 to 1 transition.

QAI Note:

There was no documentation available at this time for the "A" deck field splice identified as identified as W4/W5. The verification of the 2-1/2 to 1 transition at the planar misalignment will be performed when the documentation is provided by the Quality Control department.

QA Observation and Verification Summary

The QA inspector observed the QC activities and the welding of the field splices utilizing the WPS as noted above, which appeared to be posted at the weld station. The welding parameters and surface temperatures were verified by the QC inspector and utilizing a Fluke 337 clamp meter for the electrical welding parameters and a Fluke 63 IR Thermometer for verifying the preheat and interpass temperatures. The ESAB consumables utilized for the SMAW welding process appeared to comply with the AWS Specification and AWS Classification. The QC inspection, testing and welding performed on this shift appeared to be in general compliance with the contract documents. At random intervals, the QAI verified the QC inspection, testing, welding parameters and the surface temperatures utilizing various inspection equipment and gages which included a Fluke 337 Clamp Meter and Tempilstik Temperature indicators.

The digital photographs on page 4 of this report illustrate the work observed during this scheduled shift.

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Summary of Conversations:

There were general conversations with Quality Control Inspector Bonifacio Daquinag, Jr. at the start of the shift regarding the location of American Bridge/Fluor welding, inspection and N.D.E. testing personnel scheduled for this shift.

Comments

This report is for the purpose of determining conformance with the contract documents and is not for the purpose of making repair or fit for purpose recommendations. Should you require recommendations concerning repairs or remedial efforts please contact Nina Choy 510-385-5910, who represents the Office of Structural Materials for your project.

Inspected By: Reyes, Danny

Quality Assurance Inspector

Reviewed By: Levell, Bill

QA Reviewer